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REMARKS

1. Applicant has amended Claims 11, 12, 13, 17, 21, 22, 23, and 24 by the features as defined in the paragraph bridging pages 30 and 31 of the specification, stating that resorting takes place & within spectral areas having the same codebook associated therewith. Stated differently, this limitation makes clear that a certain spectral area has a certain number of spectral values associated therewith and another spectral area has another number of spectral values associated therewith and that the resorting, *i.e.*, changing the sequence or changing the order of the spectral values takes place only among the spectral values belonging to the same spectral area.

Thus, it is assured that the claimed invention does not result in a syntax change and, particularly, only results in a data stream, which has lower quality but still provides usable but low-quality, replay results.

Exemplarily, when a first code table is associated with the first ten spectral values of a spectrum, and when a second code table is associated to spectral values 11 to 20, the sequence within the first ten spectral values is changed so that, for example, the spectral value for frequency number 9 becomes the spectral value for frequency number 3 and the spectral value for frequency number 10 becomes the spectral value for frequency number 4. This results in a quality degradation but does not result in a complete loss of quality because, for example, the spectral value for frequency number 20 cannot become the spectral value for frequency number 1 but can, at the maximum become the spectral value for frequency number 11.

Thus, the claimed invention provides an easy and straight-forward encryption procedure which, on the one hand, provides for a loss of quality but, on the other

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hand, maintains bitstream syntax and maintains a low-quality impression for a decoder not having the decryption key. Nevertheless, this encoder is able to decode the encrypted contents.

Thus, the claimed invention operates such that a decoding of the encrypted content also results in a useful but low-quality signal.

From a commercial point of view this low-quality signal can act as a teaser, which might increase the user's wish to obtain a full-quality reproduction. To this end, the user would have to buy the key and to then decrypt the signal using the key so that a full-quality reproduction takes place giving full audio enjoyment.

Importantly, irrespective of the fact whether there is an encrypted representation or a decrypted representation, both representations can be played by a decoder because an encrypted representation has exactly the same bitstream syntax as the decrypted bitstream.

Finally, the inventive resorting, *i.e.*, changing the order of spectral values or code words, can be performed easily from the encryption, as well as the decryption, point of view. Huge computational capabilities are not required for performing resorting of code words or resorting of spectral values. Thus, on the encoder side, one does not require any huge computational resources. Therefore, also on the decoder-side, one does not require huge computational resources.

2. Applicant now discusses Chen (USPN 6,300,888 B1 and the newly cited Katta (USPN 5,636,279).

Regarding Claim 11, first paragraph, Chen does not disclose any decryption or encryption. Instead, Chen only discloses in Fig. 2, elements 208 and 212, an entropy encoding step and an entropy decoding step. Entropy encoding is not an encryption using a key, but is a predefined compression algorithm for changing

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the entropy. Before an entropy encoder, there is more redundancy in the data. The redundancy is reduced at the output of the entropy encoder. An entropy encoder is not an encryptor, and an entropy decoder is not a decrypter. While an encryptor is for encrypting a message so that this message cannot be read by everybody, but redundancy does not play any role in encryption, an entropy encoder produces an output which can be read by everybody, but which has reduced redundancy with respect to the data before the entropy encoder.

Therefore, the Examiner is technically not correct when stating that entropy encoding 208 in Chen is encryption and entropy decoding (item 212 in Fig. 2 of Katta) is decryption.

Furthermore, Chen does not disclose anything with respect to scrambling by resorting. The Examiner cited column 9, lines 25-30 of Chen. Possibly, the Examiner considers "RLE encoding" to be some kind of scrambling. However, this is not true. RLE stands for run length encoding. Run length encoding is described in column 2, lines 59-62. A run length encoder statistically correlates sequences of zero values with one or more non-zero symbols and assigns variable length code words to arbitrarily long input sequences of such zero and non-zero values.

Thus, a run length encoder does not perform at all any scrambling by resorting spectral values. Instead, it is extremely important for a run length encoder that a sequence is not disturbed, *i.e.*, any values are not resorted. Instead, a sequence is represented by a certain value. Elements of the sequence are not at all scrambled in run length encoding.

Furthermore, Chen is completely silent on limiting the resorting so that the resorting takes only place within spectral areas having the same codebook associated therewith. Nothing at all is disclosed in Chen on this feature.

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Also, Chen does not disclose the encryptor for influencing the sequence of the two or more spectral values which includes resorting the spectral values. Neither column 6, lines 10-40 nor column 9, lines 5-50 illustrate anything with respect to influencing a sequence of spectral values by resorting the spectral values.

Finally, Chen is also completely silent on resorting the spectral values *only* within spectral areas having the same codebook associated therewith.

Claim 11 illustrates a transcryptor receiving a bitstream encrypted via a first key and outputting a bitstream encrypted via a second key. Thus, even if the Examiner is correct that the entropy encoder 208 is an encryptor, Fig. 2 only illustrates to decrypt the encrypted data. An additional encryption is not at all disclosed in Chen.

The Examiner's assertion that Katta discloses the inventive decrypter feature is respectfully traversed. The third paragraph of Claim 1 states that the decrypter is for decrypting the scrambled two or more spectral values by reversing the scrambling based on the first key, wherein reversing the scrambling comprises resorting the spectral values only within spectral areas having the same codebook associated therewith.

Although, Katta states that there is performed some scrambling, Katta's method does not disclose any scrambling <u>by resorting spectral</u> values. Furthermore, Katta does not disclose the limited resorting, *i.e.*, that the spectral values are resorted only within spectral areas having the same codebook associated therewith.

Katta, column 1, lines 26-32 states the scrambling algorithm applied in Katta. Particularly, a scrambling apparatus comprises an exclusive OR (XOR) calculation for applying random numbers to an inputted signal. Thus, as also becomes clear from any Figs., a random number bit is XOR'ed to an input signal

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bit by XOR gate 4, 8 shown in Figs. 1 and 2. Such an XOR gate is also illustrated in Fig. 12 as item 57 and is also exclusively described in column 11, line 61 or 67 or in column 12.

Therefore, while Katta discloses to perform a bit-wise XOR for descrambling, the claimed invention defines a specific kind of scrambling, *i.e.*, resorting spectral values so that a descrambling is reversing the scrambling, *i.e.*, again resorting the spectral values back.

As stated above, Katta is completely silent with respect to the additional limitation regarding the limiting of the resorting to spectral areas having the same codebook associated therewith.

All these arguments also apply for Claims 12, 13, 17, 21, 22, 23, and 24.

3. Applicant now discusses Claim 28.

Claim 28 is different to claim 11 as follows:

In Claim 11, quantized spectral values before entropy encoding are scrambled for encryption and are descrambled for decryption. Importantly, please note that scrambling means resorting the spectral values, *i.e.*, <u>changing their sequence</u> in the bitstream syntax.

Claim 28 does not concern for the quantized spectral values, but processes the output of the entropy encoder. Thus, in accordance with the claimed invention as defined in Claim 28, the sequence of code words output by the entropy encoder is scrambled by changing an order of code words based on a key and is descrambled by reversing the scrambling by changing the order of code words in the scrambled sequence.

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With respect to the Office Action, the Examiner refers to Chen with regard to the partial decoder and pointing to column 5, line 59 to column 6, line 7. However, the Examiner does not specifically say which element in Chen corresponds to the partial decoder. The Examiner may consider that the "entropy decoder 212" corresponds to the "partial decoder". However, this is not true, because the sequence of code words in Chen is present at the input 210 of the entropy decoder rather than at the output of the entropy decoder.

In view of that, the Examiner's argument is not correct.

With respect to the decrypter, the Examiner refers to Katta. However, Katta does not disclose any scrambling in which a sequence of code words is changed. Instead, Katta discloses to scramble based on a bit-by-bit XOR connection between a plain text bit and a key bit generated by a random number generator. However, in accordance with the claimed invention such a bit-wise XOR scrambling is not claimed. Instead, a code word is taken and exchanged with another code word so that a scrambled sequence of code words is obtained, which is different from the non-scrambled sequence of code words in that the <u>order of the code words in the scrambled sequence is different from the order of code words in the unscrambled sequence</u>. Importantly, how the order is changed depends on the key. Thus, descrambling can only be performed using a key but cannot be performed without the key. Because Katta does not disclose to generate a scrambled sequence by changing the order of the code words in the sequence, Katta also does not disclose reversing the scrambling by changing the order of code words in the scrambled sequence. Instead, Katta does not touch the sequence of code words.

With respect to the encryptor feature of Claim 28, the Examiner refers to column 14, lines 5-25 of Chen. However, what is described in Fig. 14 is the entropy encoder, *i.e.*, the device in Chen which generates a sequence of code words. As stated earlier, the passage in column 14 only discloses how a certain encoding

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algorithm is performed. A codebook key 906 is not a key based on which a resorting of a sequence or resorting of an order of code words in a sequence is performed, but is an input into a code table which corresponds to a code word. Thus, a codebook key as illustrated in block 906 in Fig. 13 is not a key which determines an order of code words in a sequence of code words, but is a portion of the to be encoded data corresponding to a certain output code word.

Therefore, the Examiner is not correct in concluding that the entropy encoder 208 in Fig. 2 corresponds to the encryptor. Again, the entropy encoder 208 in Fig. 2 would generate a sequence of code words which would then be processed by the inventive encryptor.

Finally, regarding the partial encoder of Claim 28, the Examiner refers to the encoder 208 in Fig. 2, which appears to be continously to the Examiner's argument regarding the encryptor. With respect to the encryptor, the Examiner also referred to the entropy encoder, because Fig. 14 is an encoder procedure and with respect to Claim 28, the partial encoder is different from the encryptor, because the partial encoder processes the output of the encryptor while, in accordance with the Examiner, the entropy encoder 208 would have to implement the function of the encryptor as well as the encoder.

The above arguments all apply for Claims 30, 31, 33, 34, 35, and 36, because all these claims include the feature that scrambling is performed by resorting code words within a sequence of code word after entropy encoding or the corresponding reversing the scrambling.

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Should the Examiner deem it helpful, he is encouraged to contact Applicant's attorney, Michael A. Glenn at (650) 474-8400.

Respectfully submitted,

Julia A. Thomas

Julia A. Thomas

Reg. No. 52,283

Customer No. 22,862